Delayed-Onset Infantile Cataracts in a Case of Treacher Collins Syndrome

Treacher Collins syndrome (TCS), variably known as mandibulofacial dysostosis and Franceschetti-Klein-Zwahlen syndrome, is one of a number of congenital craniofacial abnormalities characterized by malformation of the derivatives of the first and second branchial arches. Though first described by Berry in 1889, the definition of the syndrome underwent further revision and classification by Franceschetti and Klein in 1949.

The major features of the complete syndrome include bilateral hypoplasia of the mandible and zygoma, antimongoloid slanting of the palpebral fissures, micrognathia, beaked nose, malformed ears, and conductive deafness. Colobomata of the lateral lower eyelids are frequently seen, and for this reason, ophthalmologists are often consulted as part of the multidisciplinary team serving these patients. Other ocular findings, such as cataract, microphthalmos, and atresia of the lacrimal canals, are seen much less frequently.

Although cataract has been reported in the literature as an infrequent feature of TCS, the time of onset and morphological features of such cataracts have not been previously described. We present a case of TCS notable for delayed onset of bilateral cataracts that developed after the first year of life.

Report of a Case. A 1-month-old girl was referred for evaluation of abnormal eyelids. She was a healthy, full-term, 2400-g infant, the first child born to a healthy 20-year-old mother who had no complications during pregnancy. At birth, notches of the lower eyelid were noted, and she was referred for evaluation. There was no family history of ocular disease or congenital syndromes. On examination, she was found to have bilateral lower eyelid colobomas involving the lateral third of the inferior lids (Figure 1). There were no periorcular dermoids, no corneal limbal dermoids, no cataracts, and no optic nerve hypoplasia or ocular colobomas. The remainder of the ophthalmic examination was unremarkable. She was also found to have maxillary hypoplasia. Given this facial appearance, the diagnosis of TCS was considered. The patient was evaluated by the Department of Medical Genetics, which confirmed this diagnosis. The child did well until 13 months of age when the parents began to notice cloudiness in the pupils of both eyes. On ophthalmic examination, she was found to have bilateral nuclear cataracts precluding view of the posterior pole in each eye (Figure 2). There was a small rim of clear cortex peripherally. Nystagmus was not present. The patient underwent bilateral extracapsular cataract extraction with posterior chamber lens implantation without complication.

Comment. Treacher Collins syndrome is a congenital craniofacial abnormality that affects approximately 1 in 50000 live births. It is transmitted by autosomal dominant inheritance with high penetrance and variable expressivity, though approximately 60% of cases occur with no family history and are thought to arise by de novo mutation.
The pathogenesis of TCS was initially thought to be due to defective ossification of the facial bones. However, the common derivation of the affected tissues from the first and second branchial arches led to speculation that defects in neural crest cell migration might be responsible. More recently, it has been suggested that premature cell death in the ectodermal placodes of the first and second branchial arches, rather than impaired migration of neural crest cells, may instead be the pathogenetic mechanism.

The gene responsible for TCS has recently been cloned, and a protein product has been identified with homology to a family of nucleolar-cytoplasmic transport proteins. Almost all mutations identified in TCS result in premature termination of the protein product, suggesting that the pathogenetic effects result from haploinsufficiency of the gene product during embryogenesis. The precise function of this protein product and its role in TCS pathogenesis remain unknown. As a result of this research, a genetic test for prenatal diagnosis in affected families is now available.

Of note, the prevalence of cataracts is variable in other craniofacial syndromes involving malformation of the first and second branchial arches. They are seen very frequently in Hallerman-Streiff syndrome, occasionally in Pierre Robbin syndrome, and are absent in Goldenhar syndrome.

Though the literature refers to cataract as an infrequent ophthalmic finding in TCS, no specific cases with cataract could be identified. There were no cataracts mentioned in 2 recent case series that examined the ocular findings in 14 and 24 patients with TCS, respectively.

To our knowledge, this is the first reported case of delayed-onset infantile cataracts in TCS. It is significant because this child displayed no signs of cataract at birth or at 10 months of age but developed bilateral, visually significant cataracts by 13 months of age. The possibility that delayed-onset cataracts can develop rapidly in infants with TCS suggests that more frequent ophthalmologic follow-up and detailed anticipatory guidance to parents are warranted to prevent the possibility of undetected cataracts leading to irreversible amblyopia.

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Vesicular Eruption in a Child With Trigeminal Nerve Palsy During Topical Therapy With Substance P and Insulinlike Growth Factor I for Neurotrophic Keratitis

In 1997, Brown et al reported on the use of substance P and insulin-like growth factor I for the topical treatment of neurotrophic and anhidrotic keratitis in a child. Since then, other authors have used these compounds to treat a variety of corneal conditions that caused chronic focal or diffuse epithelial disruption. Herein, we report a possible complication when the combination of substance P and insulinlike growth factor I was used to treat neurotrophic keratitis in a child with complete trigeminal nerve (cranial nerve V) palsy.

Report of a Case. A 28-month-old girl sustained permanent, total left trigeminal nerve palsy after a motor vehicle crash. She was referred to us 3 months later with a chronically red eye and partial ptosis. The mother reported that the child would vigorously rub and pick at her left nostril (causing bleeding), scratch her cheek, and also dig her fingers into her left inferior conjunctival fornix, without evidence of pain. On examination, the inferior conjunctiva was diffusely injected. The exposed inferior third of the cornea was rough and partly opaque, with adherent mucous strands. The cornea underneath the ptotic lid was clear and lustrous. Partial oculomotor nerve palsy prevented an adequate Bell reflex. Lacrimation could not be tested, but an adequate, although mucoid, tear lake was present. Formal testing of corneal and periorcular sensation was not attempted. The diagnosis was traumatic, neurotrophic, and exposure keratitis. Initial treatment with heavy topical lubrication and erythromycin ointment failed to prevent frequent recurrent erosions and superimposed bacterial keratitis. A lateral tarsorrhaphy was performed, but the cornea failed to stabilize, partly because of the child’s self-mutilating behavior.

On the basis of our previous experience, we elected to treat the child with substance P (Multiple Peptide Systems, Inc, San Diego, Calif), 250 µg/mL, combined with insulinlike growth factor I (Boehringer-Mannheim GmbH, Mannheim, Germany), 25 ng/mL, dissolved in hyaluronic sodium (Healon GV; Pharmacia & Upjohn, Inc, Kalama-zoo, Mich), 1 drop 3 times daily. Investigational drug approval was obtained from the US Food and Drug Administration. The first scheduled follow-up visit at 1 week was not completed. The child was seen 2 weeks after initiating treatment. Her mother reported that after 2 to 3 days, she developed white blisters along the lower eyelid margin, and redness and blistering of the lower lid and the cheek. The mother discontinued the medication after 7 days of treatment. The lid margin blisters resolved rapidly.

Seven days after discontinuation, the inferior conjunctiva was somewhat less injected than before.